

**Before the
Federal Communications Commission
Washington, D.C. 20554**

Technology Transitions Policy)	
Task Force Seeks Comment)	GN Docket No. 13-5
On Potential Trials)	

COMMENTS OF INTELEPEER, INC.

IntelPeer, Inc. ("IntelPeer") submits its Comments on the issues raised by the Technology Transitions Policy Task Force ("Task Force") regarding how the Federal Communications Commission ("Commission") might conduct a variety of technology trials associated with the TDM-to-IP transition occurring in the communications industry.¹

I. Introduction and Summary

IntelPeer, Inc. is a leading provider of Internet protocol ("IP") communications services to service providers, as well as end user business customers. IntelPeer is transforming communications by delivering multimodal offerings, including voice and video, across devices, networks and geographies. IntelPeer delivers more than 23 billion minutes annually over the sophisticated and intelligent routing software in our extensive Media Peering Grid™. Through our Media Peering Grid™, IntelPeer exchanges traffic with more than 130 other service providers, and between more than 450 million telephone numbers and end point identifying addresses in our SuperRegistry® global directory. Our solutions allow our wholesale and business

¹ *Technology Transitions Policy Task Force Seeks Comment on Potential Trials*, GN Docket No. 13-5, Public Notice, DA 13-1016 (Technology Transitions Policy Task Force, May 10, 2012) (*IP Technology Trials Public Notice*).

customers to transition from legacy telecommunications networks to next-generation, all IP-based communications in a rapid and cost-effective manner.

In its Comments, IntelPeer urges the Commission to adopt a series of systematic trial phases to foster the transition to an all-IP environment for domestic voice communications. In addition to the current *FCC VoIP Numbering Trial*,² the Task Force proposes a number of possible technology trials addressing (i) interconnection of voice over Internet protocol (“VoIP”); (ii) migration to Next Generation 9-1-1 (“NG911”); (iii) replacement of wireline services with wireless services; (iv) conversion to an all-IP environment in certain locations; (v) databases associated with VoIP numbering; (vi) access to VoIP services for disabled persons or low-income persons; and (vii) transitions from copper to fiber. Conducting discrete trials on seven distinct issues could yield incompatible conclusions about how best to proceed, further delaying absolute resolution of the issues the Task Force, the Commission and the industry are working diligently to discover.

Instead, IntelPeer encourages the Commission to construct a more comprehensive approach for any additional technology trials, which includes separate trial phases based on certain milestones inevitable in the TDM-to-IP transition, coupled with an exhaustive and comparable analysis of a constant set of fundamental elements associated with each milestone. IntelPeer suggests beginning with conducting the current *FCC VoIP Numbering Trial*, then tackling the requisite network and standards

² *In the Matter of Numbering Policies for Modern Communications*, WC Docket No. 13-97, *IP-Enabled Services*, WC Docket No. 04-36, *Telephone Number Requirements for IP-Enabled Services Providers*, WC Docket No. 07-243, *Telephone Number Portability*, CC Docket No. 95-116, *Developing a Unified Intercarrier Compensation Regime*, CC Docket No. 01-92, *Connect America Fund*, WC Docket No. 10-90, *Numbering Resource Optimization*, CC Docket No. 99-200, Notice of Proposed Rulemaking, Order and Notice of Inquiry, FCC 13-51 (rel. April 19, 2013)(“*FCC VoIP Numbering Trial*”).

development to ensure interoperability and reliability, with the ultimate goal of exchanging traffic between IP endpoints on the Internet similar to other pure cloud applications today. Focusing on the same fundamental elements, such as the physical network, the numbering administration and the market considerations, in uniformly structured trial phases will allow the Commission and the industry to identify technical hurdles, track technological advancements and address consumer protection concerns in an efficient manner, as the industry progresses from one trial phase to the next.

II. Transitioning Voice Communications to an All-IP Environment in the U.S. Requires a Series of Systematic Trial Phases.

Addressing each of the regulatory issues affecting the TDM-to-IP transition in the context of separate trials could lead to convoluted results, and ultimately produce piecemeal application of possibly unwarranted regulations. The uncertainty caused by such an approach could hinder the evolution of the communications network, any widespread investment by the industry, and the upsurge in consumer confidence during the transition. Instead of continuing to approach each issue as separate and distinct, the time has come for the Commission and industry to take advantage of the natural overlay these issues inherently have.

The industry has figured out how to transmit and exchange voice calls via IP in a reliable and scalable manner, but remains encumbered by institutional and regulatory constraints (or the threat thereof), which are likely to be avoidable in an all-IP environment. Therefore, IntelPeer encourages the Commission and its Task Force to adopt a detailed plan to oversee a series of trial phases to be conducted by the industry, without presupposing any more than necessary about future technological advancements or market variations (while planning to adjust accordingly as the trial

phases progress). To do this the Commission should envision what continuum of logical steps might likely get us from where we are with today's technology and regulation, to an all-IP environment, in which consumers to transmit voice communications to and from endpoints anywhere on the Internet, without unfounded regulatory intervention. For each milestone, the Commission could structure a trial phase to address the specific issues raised by the intended outcome of that phase (as described further in Section II.), in hopes of moving the industry along the continuum towards the subsequent trial phases and the ultimate transition.

A. Current *FCC VoIP Numbering Trial*

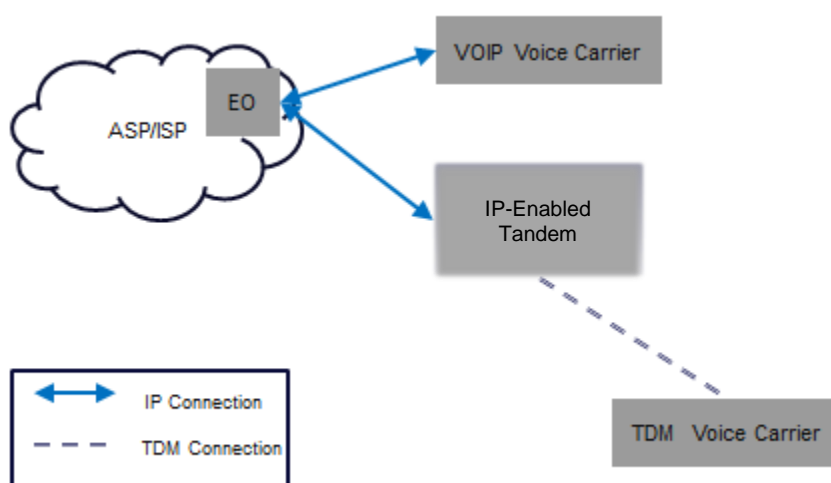
Earlier this year, the Commission approved a trial by certain VoIP providers to gain direct access to telephone numbers, which could be considered prudently as the first trial phase. The Commission authorized the trials in order “to provide valuable technical insight for the Commission to assess whether amending our rules to provide direct access to numbers routinely will raise issues relating to number exhaust, number porting, VoIP interconnection, and inter-carrier compensation, and if so, how those issues may be efficiently addressed” in its Rulemaking.³ By having direct access to telephone numbers, VoIP providers will no longer be forced to route voice calls through a local exchange carrier.

Instead, these *FCC VoIP Numbering Trial* participants will figure out the details of how to utilize the Local Exchange Routing Guide (“LERG”) to route VoIP traffic with carriers and other VoIP providers. The *FCC VoIP Numbering Trial* participants will be able to route some traffic through direct IP connections with carriers and other VoIP

³ *FCC VoIP Numbering Trial* at ¶ 88.

providers, who are willing and capable of establishing such a connection. However, the *FCC VoIP Numbering Trial* participants will need to contract with an IP-enabled tandem provider, and set them as a default in the LERG for all traffic exchanged with carriers or other VoIP providers to which direct IP connections are not available, as set forth in Figure A below.

Figure A

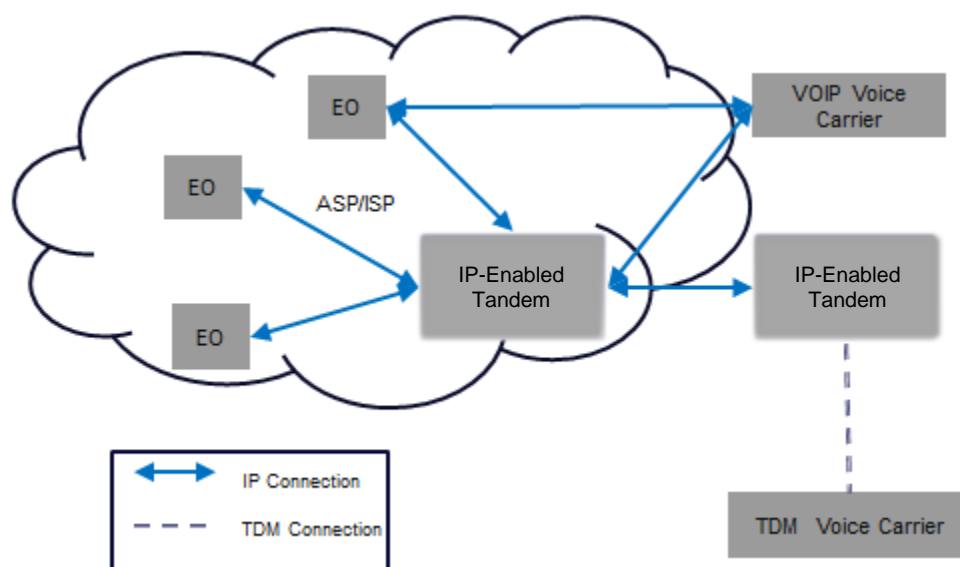


B. IP-Enabled Tandem Trial Phase

Once VoIP providers are routing standardly through the LERG and exchanging traffic as necessary, the next plausible trial phase involves authorizing over-the-top internet service providers (“ISPs”) or application service providers (“ASPs”) to register as a provider of tandem services to an end office. An IP-enabled tandem approach will finally support voice communications entirely via IP, through interconnections to the IP-enabled tandem, or directly to the end office, as demonstrated in Figure B. Alternatively, the IP-enabled tandem providers also could be capable of transiting the

existing TDM traffic from the public switched telephone network (“PSTN”) using the same configuration.

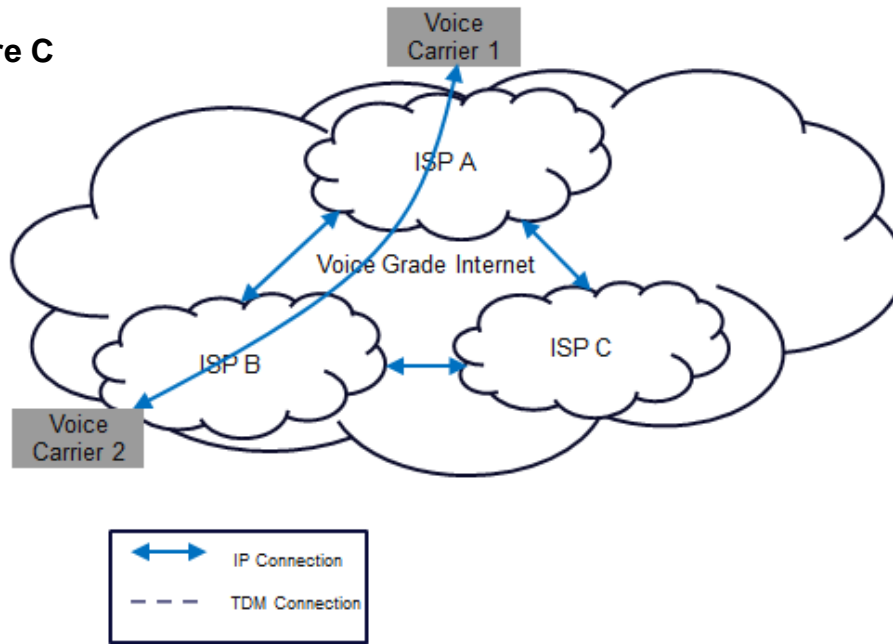
Figure B



C. Voice Grade Internet Trial Phase

Enabling VoIP providers with their own telephone numbers to route calls to and from end offices in IP would be followed by a trial phase to develop and adopt industry standards for the service quality levels, technical capabilities and traffic traceability mechanisms to support a “Voice Grade Internet”, as illustrated in Figure C. The standards set in this trial phase would define the key performance criteria around jitter, latency, packet loss and network redundancy and availability. The objective for setting such standards would be for the IP connectivity via the Voice Grade Internet to meet or exceed the voice quality and service availability than exists on the PSTN today.

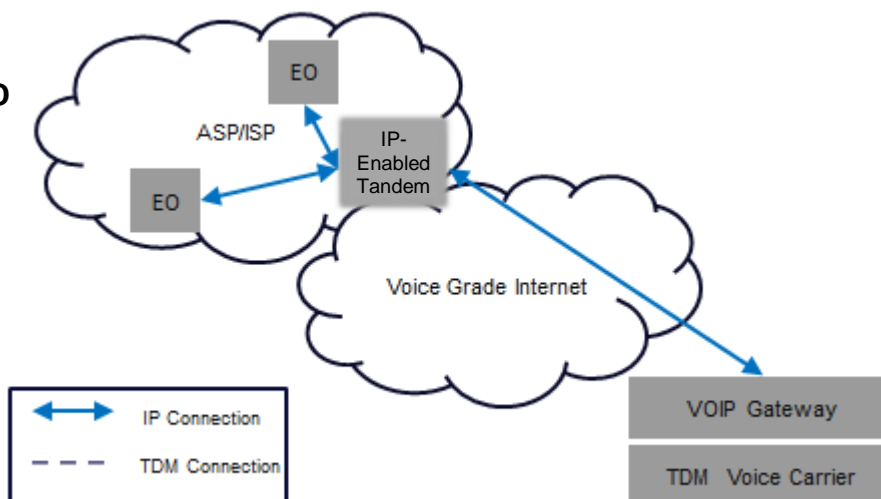
Figure C



D. FGD over Voice Grade Internet to IP End Offices Trial Phase

To complete this continuum of trial phases, the Commission should encourage the local exchange carriers to complete the migration to IP. This final phase will facilitate the transition to Feature Group D trunking to the local exchange carriers over the public Voice Grade Internet. At this point, any service providers with communities of interest will be able to exchange voice communications over the Voice Grade Internet, defined in Section II.C.. Without the need to incur the substantial costs of dedicated circuits, American consumers will have superior quality voice communications at a lower price.

Figure D



III. ADDRESSING THE FUNDAMENTAL ELEMENTS IN EACH TRIAL PHASE WILL PRODUCE MORE THOROUGH RESOLUTIONS.

With the broad objectives of these trial phases in mind, the Commission can assist the industry in exposing all of the hurdles associated with completing the TDM-to-IP transition, while discovering the technological solutions, coupled with any regulatory constraints, needed to realize that transformation. Though the trials will likely reveal additional challenges, the industry has established an extensive set of known obstacles related to the transition.⁴ In fact, the Task Force outlines several of these issues in its Public Notice, including VoIP interconnection, NG911 migration, numbering administration and databases, disability accessibility, and copper retirement.⁵

Adopting a uniform structure for each trial phase will ensure the Commission and the industry consider each factor in each trial phase collectively, and weigh appropriately against all of the other applicable factors. Without this approach, a significant amount of work done in a trial on one distinct issue, like VoIP

⁴ See *Pleading Cycle Established on AT&T and NTCA Petitions*, GN Docket No. 12-353, Public Notice, DA 12-999 (rel. Dec. 14, 2012); *AT&T Petition to Launch a Proceeding Concerning the TDM-to-IP Transition*, at 1 (filed Nov. 7, 2012); *Petition of the National Telecommunications Cooperative Association for a Rulemaking to Promote and Sustain the Ongoing TDM-to-IP Evolution*, at 1 (filed Nov. 19, 2012); *FCC VoIP Numbering Order*; *Petition of XO Communications, LLC, et al., For a Rulemaking to Amend Certain Part 51 Rules Applicable to Incumbent LEC Retirement of Copper Lops and Copper Subloops*, RM-11358; *Vonage Petition for Limited Waiver*, CC Docket No. 99-200; *Developing an Unified Intercarrier Compensation Regime*, CC Docket No. 01-92; *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, CC Docket No. 02-23; *IP-Enabled Services*, WC Docket No. 04-36; *High-Cost Universal Service Support*, WC Docket No. 05-337; *Establishing Just and Reasonable Rates for Local Exchange Carriers*, WC Docket No. 07-135; *A National Broadband Plan for Our Future*, GN Docket No. 09-51; *Cbeyond, Inc. Petition for Expedited Rulemaking to Require Unbundling of Hybrid, FTTH and FTTC Loops Pursuant to 47 U.S.C. §251(c)(3) of the Act*, WC Docket No. 09-223; *Connect America Fund*, WC Docket No. 10-90; *Universal Service Reform – Mobility Fund*, WT Docket No. 10-208; *Framework for Next Generation 911 Deployment*, PS Docket No. 10-255; *Petition for Declaratory Ruling that tw telecom Has the Right to Direct IP-to-IP Interconnection Pursuant to Section 251(c)(2) of the Communications Act, as Amended, for the Transmission and Routing of tw telecom's Facilities-Based VoIP Services and IP-in-the-Middle Voice Services*, WC Docket No. 11-119; *Facilitating The Deployment Of Text-To- 911 And Other NG911 Applications*, PS Docket No. 11-153; *Petition of USTelecom for Forbearance Under 47 U.S.C. § 160(c) From Enforcement of Certain Legacy Telecommunications Requirements*, WC Docket No. 12-61; *Legal And Statutory Framework For Next Generation 9-1-1 Services Pursuant To The Next Generation 9-1-1 Advancement Act Of 2012*, PS Docket No. 12-333.

⁵ *IP Technology Trials Public Notice* at 3-12.

interconnection, potentially could be rendered entirely unworkable by a finding on a factor addressed in a different, subsequent trial, like NG911. Instead of trying to resolve each separately in a vacuum, IntelPeer urges the Commission to structure the phased trials to address each obstacle in a methodical and comprehensive manner.

Undertaking the crucial technology trials in such a manner will allow the Commission to guide the transition trials so as to instill greater investment and stability in the industry, prompting more innovative technologies as well as consumer confidence.

A. Focusing on the Same Fundamental Elements in Each Trial Phase Will Promote Consistency and Movement through the Transition.

For purposes of these trial phases, IntelPeer suggests categorizing the known obstacles needing to be resolved by the trials into three basic factors: Physical Networking, Numbering Administration and Market Considerations. Physical Networking would include such issues as interconnection or peering obligations, routing capabilities, system replacements (including copper with fiber or wireline with wireless), NG911 migration, interoperability, reliability, rural call completion, and overall network security, as those relate to the goals to be accomplished in the particular trial phase. Numbering Administration would consist of any additions or modifications to the various databases for telephone numbers, along with any other acceptable identifiers, necessary for each trial phase. Finally, Market Considerations would take into account all industry standards setting, quality of service, compensation, disability accessibility, consumer protection, universal service, rural call completion, carrier of last resort obligations, and provider registration as necessary.

B. Following the Same Five Steps for Each Trial Will Increase the Productivity of the Overall Effort.

To assist the industry through the trial phases, the Commission could oversee the trial phases using a consistent framework commonly used for technology development: Submission of Objectives, Testing and Interoperability, Proof of Concept, Planned Partial Adoption, and Complete Adoption. This framework provides for consistency between phases, with the flexibility to guide the focus of each trial phase based on what was learned from the previous phases, without artificially guiding the TDM-to-IP transition towards a particular technology or medium.

First, the Commission would request Submission of Objectives for the upcoming trial phase, asking for input from all interested parties on each of the factors outlined above, plus any other particular issues might be applicable for the objective of that phase. It will be important for the Commission also to provide an opportunity for sufficient comments and responses on the suggestions offered, to determine the most plausible approach, scope and timing for the trial phase.

Second, the Commission would set a period for Testing and Interoperability amongst the industry participants of the factors involved in the scope in the trial phase. The appropriate length of this period would likely fluctuate between trial phases, depending on the scope set forth by the Commission. Also, the scope of the trial phase would establish the requisite criteria (and possibly timing and frequency) for the periodic reporting by the industry on the applicable fundamental elements.⁶

⁶ The Commission would need to determine which portions of the periodic reports, if any, should be protected as confidential due to competitive or security concerns.

Third, the Commission would work with the industry to summarize the findings from Testing and Interoperability to present a Proof of Concept. The Proof of Concept would substantiate the feasibility of the objectives of the trial phase. Of course, interested parties would need to be able to comment on the summary and resulting Proof of Concept, to vet fully any remaining problematic elements prior to initiating adoption.

Fourth, the Commission could work with the industry to design a Planned Partial Adoption for the trial phase objectives, focusing on achieving substantial, though not complete, deployment of the solutions identified in the trial phase. The achievable level of penetration in a market or serving area would likely vary between trial phases, solutions and other market factors. However, the Commission and industry could identify a target penetration level, plus focus on highlighting the remaining outliers and examining the reasons for such in preparation for the complete adoption.

Fifth, the Commission could coordinate forecasts and incentives for Complete Adoption by the industry of the solutions outlined in the trial phase. To conclude the Planned Partial Adoption, the industry should have identified the causes of outlying hurdles for adoption and be prepared to predict what additional solutions might be undertaken. With this in mind, the industry with the help of the Commission should be able to forecast when Complete Adoption should be able to occur and to identify what incentives, if any, might be helpful in driving towards Complete Adoption.

IV. CONCLUSION

Accordingly, IntelPeer recommends that the Commission and Task Force proceed with the technology trials necessary to advance the TDM-to-IP transition in the United States. However, IntelPeer promotes a comprehensive approach to the trials that addresses each of the fundamental elements collectively and indeed fosters the completion of the transition. Such an approach will expedite the potential benefits of an all-IP voice communications system for all Americans to enjoy.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Kristin L. Manwarren".

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